EUROPEAN COMMISSION
Information Society and Media Directorate General

Lisbon Strategy and Policies for the Information Society
Lisbon Strategy and i2010

Use of Computers and the Internet in Schools in Europe 2006

Country Brief: Hungary

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Key findings

Almost all Hungarian schools now use computers for teaching and have internet access. 77% use the internet via a broadband connection. With this figure Hungary ranks at number 11 of the 27 countries participating in the survey. There is some variation between school types: while 74% of primary schools have a broadband internet connection, the penetration is highest among upper secondary schools, with 86% and vocational schools (88%).

However, only a very low 19% of the Hungarian schools using computers for teaching use them in classrooms, with hardly any differences across school types.

Also, only a very low 43% of Hungarian classroom teachers had used computers in class in the 12 months prior to the survey, with some substantial variation across school types but hardly any between urban and rural areas. While almost two thirds of the vocational school teachers have used ICT in class, the figure is at around one third in primary schools. With these figures Hungary takes third last place in Europe. The motivation to use ICT in class seems to be very low among Hungarian teachers. The situation is poorer only in Latvia and Greece.

Those teachers using ICT in class either use it in only up to 10% of their lessons (around a fifth) or very intensively and frequently i.e. in more than 50% of their lessons (around a fourth). Teachers in upper secondary and vocational schools are the most intensive users with almost 40% of them belonging to the heavy users.

It appears as if we are faced with a situation that this (still not very large group of) teachers using ICT in class do so rather frequently and intensively as revealed by the survey results. However, the problem seems to be to get Hungarian teachers to become ICT users.

A very high 57% of teachers in Hungary still do not use computers in class. When asked for the most important barrier, 49% state a lack of computers in their schools as the key barrier. Other factors receive a much lower mention. Lack of computers is mostly stated by teachers in primary schools (51%).

"Lack of skills", "no or unclear benefits in using ICT" and "lack of interest" do not seem to constitute major barriers since these are only mentioned rarely as a constraint to wider ICT use by Hungarian teachers.

A very high 81% wish there were better support and maintenance actions taken. In only four other European countries does ICT maintenance and support for teachers seem to be worse.

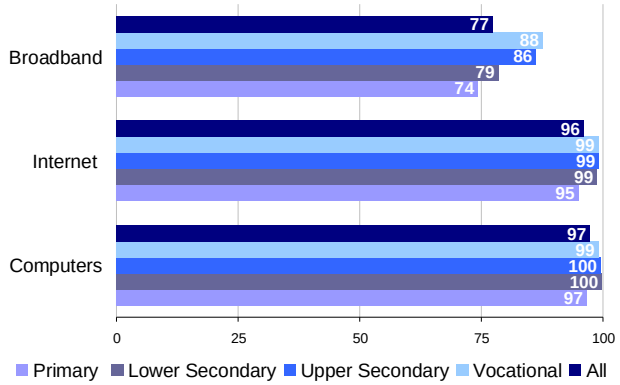
Over 90% of Hungarian teachers see significant learning benefits for pupils using computers in class and say that pupils are more motivated and attentive when computers and the internet are used in class. Two thirds of the teachers express the opinion that using ICT in class also results in significant learning benefits for pupils.

But despite all these positive attitudes, it appears as if motivation of teachers for using ICT in class is problematic since 23% of those teachers with appropriate access to ICT and sufficient competence rate poorly on motivation. Also the group of teachers with access but lack of motivation and competence accounts for 12% in Hungary and is three times higher than the European average. This assumption is confirmed by the fact that only a very low 19% of the Hungarian schools using computers for teaching use them in classrooms and only 43% of teachers have used ICT in class in the last year.

ICT Equipment and Internet in Schools

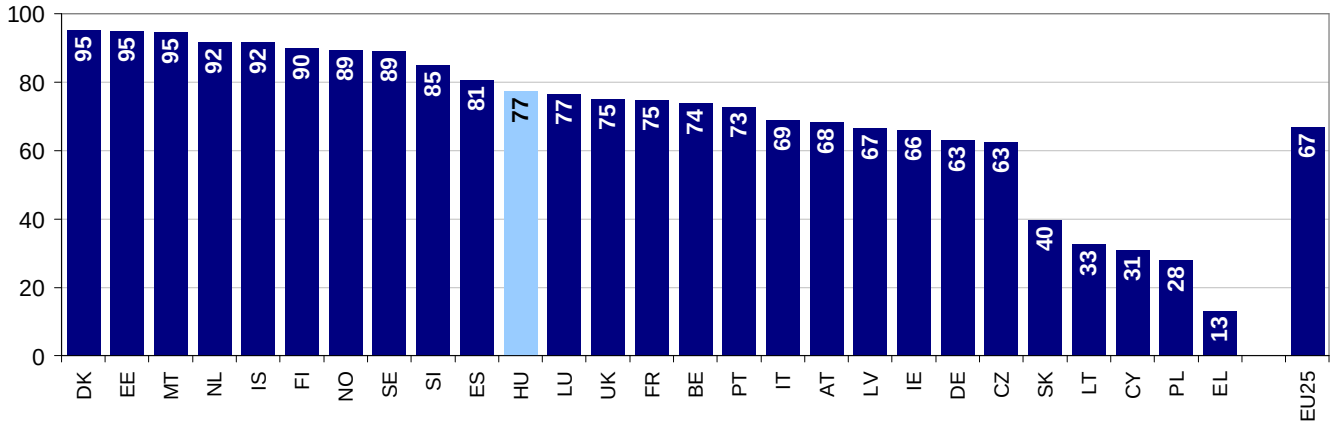
Almost all Hungarian schools now use computers for teaching and have internet access. 77% use the internet via a broadband connection. With this figure Hungary ranks at number 11 of the 27 countries participating in the survey. There is some variation between school types: while 74% of primary schools have a broadband internet connection, the penetration is highest among upper secondary schools, with 86% and vocational schools (88%).

Percentage of Schools Using Computers, Internet Connection, and Broadband Internet Access According to School Type in Hungary 2006



Source: *LearnInd HTS 2006;* ***Base:*** *All schools;* ***Question:*** *Computers: Q6; Internet, Broadband: Q9. See questionnaire for exact wording.*

Percentage of Schools with Broadband Internet Access in Europe 2006



Source: *LearnInd HTS 2006;* ***Base:*** *All schools;* ***Question:*** *Q9. See questionnaire for exact wording.*

There is also some variation with regard to broadband access between urban and rural areas: 81% of schools in densely populated areas have broadband access compared to 73% of schools in thinly populated areas. 56% of schools have a website, 43% offer e-mail to teachers, and 26% do so to pupils.

Only a very low 19% of the Hungarian schools using computers for teaching, use them in classrooms with hardly any differences across school types. The motivation to use ICT in class seems to be very low among Hungarian teachers. The situation is only poorer in Greece.

Those schools with a broadband connection to the internet are much more likely to have a more sophisticated ICT infrastructure including a school website, the use of a LAN or the availability of an intranet.

The use of Computers and the Internet in Schools

Computers are used for various purposes and as part of teaching different subjects in schools but also and very widely as a separate subject.

Computer sciences are taught as a separate subject in almost 100% of Hungarian schools, with hardly any difference across school types. 73% use it integrated into the teaching of most subjects, whereby this is mostly the case in vocational schools (90%) and least in primary schools (69%).

Only a very low 43% of Hungarian classroom teachers had used computers in class in the 12 months prior to the survey, with some substantial variation across school types but hardly any between urban and rural areas.

ICT equipment in Hungarian schools 2006

				Educational Level (HU)				Type of locality (HU)			Internet Access (HU)	
	Total HU	Total EU25	Total NMS10	Primary	Lower secondary	Upper secondary	Vocational	Densely populated	Inter-mediate	Thinly populated	Narrow-band	Broadband
Computers per 100 pupils [a]	9.6	11.3	7.1	6.8	7.8	11.6	16.4	10.4	9.3	8.9	9.3	9.7
... of which internet connected	8.6	9.9	6.4	5.9	7.1	11.0	14.8	9.4	8.2	7.9	8.1	8.8
Percentage of schools having...												
Computers for teaching [b]	97.3	98.7	96.7	96.7	99.9	99.6	99.0	98.4	100.0	95.8	100.0	100.0
Internet access [c]	96.1	96.2	94.7	95.0	98.8	99.2	99.0	96.0	100.0	94.7	100.0	100.0
Broadband internet access [d]	77.4	66.9	43.4	74.3	78.6	86.3	87.7	81.4	83.0	73.3	0.0	100.0
A website [e]	55.6	63.0	66.7	44.4	56.5	89.5	93.2	80.2	65.0	40.0	48.3	60.2
An e-mail address for the majority of teachers [f]	42.8	65.2	48.1	34.9	43.3	64.7	72.2	51.8	41.4	38.9	49.5	43.4
An e-mail address for the majority of pupils [g]	26.3	23.5	24.4	20.5	26.2	42.7	47.2	34.0	40.1	17.5	31.7	26.3
A LAN [h]	55.6	55.2	60.4	46.4	57.0	81.5	87.0	64.1	64.0	48.4	47.5	60.5
An intranet [i]	23.3	40.8	26.9	18.2	23.0	38.6	37.1	33.7	28.7	16.2	18.2	25.7
An external support or maintenance contract [j]	40.2	47.1	44.3	40.4	41.6	40.4	39.9	42.3	35.9	40.7	34.8	43.6
Percentage of schools using computers for education in...												
Computer labs [k]	95.9	80.5	94.6	95.1	97.8	99.1	97.3	99.1	95.6	94.3	95.8	96.5
Classrooms [l]	18.5	61.4	29.5	19.3	17.6	18.5	17.5	24.2	15.8	16.6	19.6	17.8
School library [m]	37.3	33.4	36.8	32.1	38.5	55.6	45.5	45.1	44.7	30.6	30.4	39.6
Other locations accessible for pupils [n]	14.3	27.0	20.2	10.0	13.4	25.4	28.4	18.0	14.5	12.4	10.8	15.4

Source: *LearnInd HTS 2006;* ***Base:*** *a: all pupils; b-j: all schools, k-n: schools using computers for educational purposes for pupils (cf. index b);* ***Question:*** *a: Q4, Q6, Q7; b: Q6; c: Q9; d: Q9; e-j: Q12; k-n: Q8. See questionnaire for exact wording.*

Use of computers in class in Hungary 2006

Assessments of the head teacher		Total HU	Total EU25	Total NMS10	Educational Level (HU)				Type of locality (HU)			Internet Access (HU)	
					Primary	Lower secondary	Upper secondary	Vocational	Densely populated	Inter-mediate	Thinly populated	Narrow-band	Broadband
Computer sciences taught as separate subject	Agree	96.3	54.7	91.2	95.3	98.0	98.7	100.0	98.3	100.0	93.9	92.1	98.0
	Disagree	3.6	43.7	8.4	4.7	1.9	0.9	0.0	1.7	0.0	5.9	7.4	2.0
	Don't know	0.1	1.6	0.4	0.0	0.1	0.4	0.0	0.0	0.0	0.2	0.6	0.0
Computers and the internet are													
integrated into teaching of most subjects	Agree	72.7	75.3	73.1	68.8	71.0	82.3	89.6	82.3	75.0	67.0	61.5	75.9
	Disagree	26.8	24.1	26.4	30.8	28.7	16.8	10.4	17.2	25.0	32.3	37.9	23.6
	Don't know	0.5	0.6	0.4	0.4	0.3	0.9	0.0	0.5	0.0	0.7	0.6	0.5
used for teaching traditional subjects or basic skills	Agree	38.5	75.8	72.3	39.2	36.0	36.0	35.1	43.7	31.2	38.6	34.1	39.7
	Disagree	60.3	22.8	26.0	60.4	63.0	60.7	63.1	54.9	66.9	60.5	64.1	59.5
	Don't know	1.2	1.4	1.7	0.4	1.0	3.2	1.8	1.4	1.9	0.9	1.8	0.8
used for teaching foreign languages	Agree	70.2	56.6	71.1	67.7	68.7	75.1	78.7	73.4	70.8	68.3	56.4	73.9
	Disagree	28.6	40.1	28.0	31.2	30.1	23.2	20.3	24.2	29.2	30.6	40.9	25.7
	Don't know	1.2	3.3	0.8	1.2	1.1	1.7	1.0	2.4	0.0	1.1	2.6	0.4
used for teaching students with special needs/ handicaps	Agree	61.2	71.7	58.3	66.8	60.8	49.3	45.8	52.5	67.7	63.3	54.5	62.9
	Disagree	35.5	23.7	31.6	31.0	36.2	45.9	47.9	42.2	31.0	33.8	41.3	34.3
	Don't know	3.3	4.6	10.1	2.2	2.9	4.8	6.3	5.4	1.3	3.0	4.2	2.8

Source: *LearnInd HTS 2006;* ***Base:*** *All schools using computers for educational purposes for pupils;* ***Question:*** *Q13: "To what extent do you agree or disagree with the following statements regarding the educational use of computers and/or the internet in your school?"*

While almost two thirds of the vocational school teachers have used ICT in class, the figure is at around one third in primary schools. With these figures Hungary takes the third last place in Europe. The situation is only worse in Latvia and Greece.

Those teachers using ICT in class either use it only in a few, i.e. up to 10% of their lessons (around a fifth), or very intensively and frequently i.e. in more than 50% of their lessons (around a fourth). Teachers in upper secondary and vocational schools are the most intensive users with almost 40% of them belonging to the heavy users.

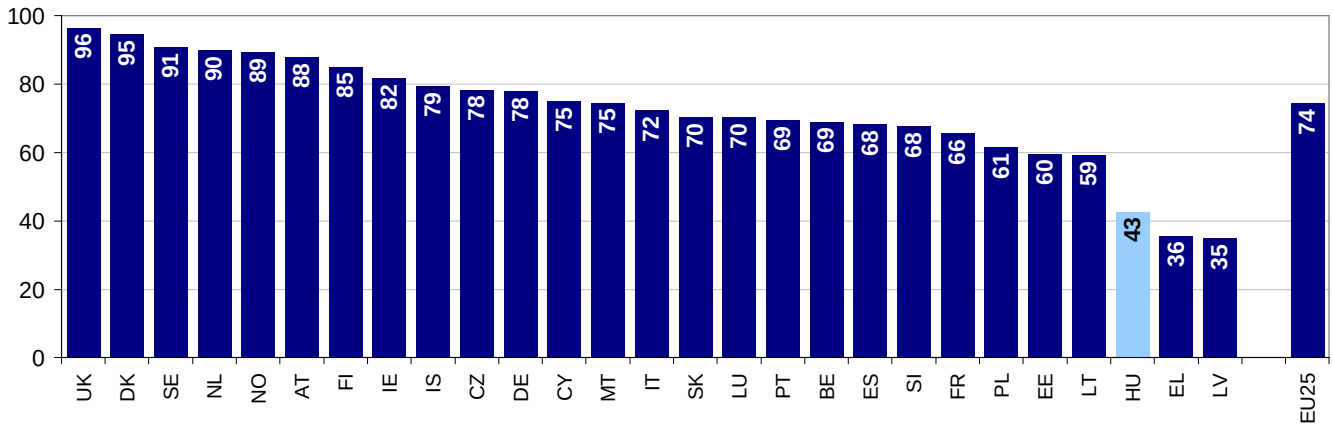
The younger the teachers, the more they use ICT in class. Around a third of those with up to 10 years teaching experience fall into the group of heavy users. However, also a fourth of the older teacher generation uses ICT in class. It appears as if we are faced with a situation that those teachers (still not a very large group) using ICT in class do so rather frequently and intensively. However, the problem seems to be to get Hungarian teachers to become ICT users.

A very high 57% of teachers in Hungary still do not use computers in class. When asked for the most important barrier, 49% state a lack of computers in their schools as the key barrier. Other factors receive much lower mentioning. Lack of computers is mostly stated by teachers in primary schools (51%).

This results in a situation where the statement “lack of equipment in school” is expressed by a very substantial 28% of all Hungarian teachers (57% non-users multiplied with 49% of teachers agreeing to this item).

“Lack of skills”, “no or unclear benefits in using ICT” and “lack of interest” do not seem to constitute major barriers since these are only mentioned rarely as a constraint to wider ICT use by Hungarian teachers.

Percentage of teachers who have used computers in class in the last 12 months (2006)



Source: *LearnInd CTS 2006;* ***Base:*** *All teachers;* ***Question:*** *Q7. See questionnaire for exact wording*

Teachers' use of computers in class in Hungary 2006

Percentage of teachers who …	Total HU	Total EU25	Total NMS10	Educational Level (HU)				Type of locality (HU)			Years of teaching experience (HU)			
				Primary	Lower secon-dary	Upper secon-dary	Voca-tional	Densely popu-lated	Inter-mediate	Thinly popu-lated	<5 y	5-9 y	10-19 y	20+ y
...have used computers in class[1]	42.8	74.3	61.3	36.8	40.1	60.0	64.1	45.4	40.7	42.2	44.2	48.4	50.8	37.2
…use a computer in class to present or demonstrate	41.0	63.4	55.5	34.9	38.1	58.7	62.8	44.7	39.8	39.6	44.2	45.1	48.1	35.9
…have pupils use a computer in class	35.8	66.3	53.8	32.7	34.4	45.3	48.1	34.2	32.7	37.7	37.4	37.3	40.7	32.6

Source: *LearnInd CTS 2006;* ***Base:*** *All teachers;* ***Question:*** *Q7 "How have you used computers and/or the internet for work in the last 12 months?"*

Frequency of computers use in class in Hungary 2006

Percentage of all teachers *using computers in class* who …	Total HU	Total EU25	Total NMS10	Educational Level (HU)				Type of locality (HU)			Years of teaching experience (HU)			
				Primary	Lower secon-dary	Upper secon-dary	Voca-tional	Densely popu-lated	Inter-mediate	Thinly popu-lated	<5 y	5-9 y	10-19 y	20+ y
…use computers in 5% and less of all lessons	20.6	18.5	15.0	22.5	20.8	19.5	13.9	19.6	24.3	19.8	14.2	17.9	22.4	21.6
in 6 to 10% of lessons	18.9	22.5	17.7	21.5	20.4	12.0	14.1	11.3	19.6	22.8	18.4	35.0	15.2	17.5
in 11 to 24% of lessons	16.0	22.2	22.1	16.9	16.7	13.7	13.8	16.4	12.4	17.0	9.4	8.5	20.7	16.2
in 25 to 50% of lessons	17.8	20.2	24.0	17.8	17.3	17.4	19.5	13.5	21.6	18.8	25.4	6.0	18.3	18.6
more than 50% of lessons	26.8	16.5	21.3	21.3	24.8	37.4	38.6	39.2	22.1	21.7	32.6	32.6	23.5	26.2

Source: *LearnInd CTS 2006;* ***Base:*** *Teachers using computers in class, "don't know" answers excluded;* ***Question:*** *Q9 "For what percentage of time have you used computers and/or the internet in class when teaching your main subject(s) in the past 12 months*

Source of educational material used in class in Hungary 2006

Percentage of all teachers *using computers in class*[2] who …	**Total HU**	**Total EU25**	**Total NMS10**	**Educational Level**				**Type of locality**		
				Primary	**Lower secondary**	**Upper secondary**	**Vocational**	**Densely populated**	**Inter-mediate**	**Thinly populated**
…use material they have searched the internet for	82.2	82.7	81.8	81.4	81.6	84.1	87.4	83.8	81.0	81.8
…use existing online material from established educational sources	55.1	74.2	61.8	53.7	53.9	55.2	59.9	54.2	60.3	53.7
…use material that is available on the school's computer network or database	44.6	63.1	52.7	41.7	42.9	49.5	49.6	48.0	46.7	42.0
…use electronic offline material (such as CD ROMS)	72.0	83.0	82.2	73.9	70.0	68.9	71.9	68.0	68.0	75.4
…use other learning material when using computers in class	8.1	8.8	10.8	6.0	7.0	12.4	12.9	7.8	11.8	6.9

Source: *LearnInd CTS 2006;* ***Base:*** *Teachers using computers in class;* ***Question:*** *Q10 "Which of the following types of materials have you used when teaching your main subject(s) with the aid of a computer and/or the internet?"*

Barriers to computer use in class in Hungary 2006

Percentage of all teachers ***not*** *using computers in class*	**Total HU**	**Total EU25**	**Total NMS10**	**Educational Level**				**Type of locality**		
				Primary	**Lower secondary**	**Upper secondary**	**Vocational**	**Densely populated**	**Inter-mediate**	**Thinly populated**
Lack of computers	48.5	48.8	49.0	50.7	47.9	39.5	42.3	52.9	49.8	45.9
Lack of adequate con-tent/material	9.7	20.3	16.5	9.4	8.9	10.2	12.7	11.6	9.3	9.0
Lack of content in national language	2.6	8.6	5.7	2.2	2.5	4.6	3.5	4.3	1.6	2.2
Lack of adequate skills of teachers	9.3	22.5	9.8	9.9	10.3	6.9	3.5	7.9	8.0	10.5
No or unclear benefits	7.3	16.2	6.8	6.5	6.4	10.1	9.2	10.9	5.0	6.4
Lack of interest of teach-ers	3.4	8.9	3.3	3.4	3.2	3.3	4.5	5.1	1.1	3.5
Subject does not lend itself to being taught via computers	30.9	24.4	25.0	29.9	31.1	36.6	39.5	29.5	31.7	31.2
Other	21.3	21.3	20.3	20.4	21.7	23.7	21.2	18.4	26.5	20.7

Source: *LearnInd CTS 2006;* ***Base:*** *all teachers not using computers in class;* ***Question:*** *Q12: "Why do you not use computers and/or the internet when teaching in class?"*

Attitudes on the Usefulness of ICT use in Teaching in Hungary 2006

Percentage of teachers saying computers/internet should be used for …	Total HU	Total EU25	Total NMS10	Educational Level				Type of locality		
				Primary	Lower secondary	Upper secondary	Vocational	Densely populated	Inter-mediate	Thinly populated
Letting pupils do exercises and practise	70.3	79.9	78.8	69.4	71.5	71.8	76.9	69.9	72.6	69.6
Letting pupils retrieve information in a self-directed manner	88.3	85.0	87.8	88.6	89.1	88.8	87.1	86.9	87.0	89.5
Teaching about office tools	43.6	61.3	51.0	39.6	43.0	56.7	59.8	45.5	44.1	42.5
Collaborative and productive work by pupils	57.4	80.5	67.2	57.3	57.5	58.0	60.8	62.2	51.1	57.3
Computer/internet should not be used for any of these in teaching	0.9	0.6	0.5	0.9	1.1	0.9	0.4	1.5	1.5	0.4

Source: *LearnInd CTS 2006;* ***Base:*** *all teachers;* ***Question:*** *Q13: "What do you think for what computers and the internet should be used for in teaching?"*

Attitudes on the Usefulness of ICT use in Teaching

Computers and the internet have arrived in Hungarian schools and their use is steadily improving. The share of teachers in Hungary – but also in the European Union in general – who believe that computers and the internet should not at all be used in schools, is very low and below 1%.

Hungarian teachers have positive attitudes about the different applications for ICT in teaching and achieve figures below or around the European average on attitudes that ICT should be used for letting pupils do exercises and practice (70%), letting pupils retrieve information in a self-directed manner (88%) and for collaborative and productive work by pupils (57%). There are only small differences across school types.

Access, Competence and Motivation for Using ICT and the Internet in Schools

Access

The majority of Hungarian teachers are more or less satisfied with the technical access means at their schools: 82% state that their school is well equipped with computers and 86% express the opinion that their internet connection is fast enough. However, a very high 81% wish there were better support and maintenance actions taken. In only four other European countries do ICT maintenance and support for teachers seem to be worse.

In terms of content 47% state problems with respect to finding adequate learning materials 33% and argue that existing material are of poor quality.

Teachers' access, competence and motivation for using ICT in class 2006

Percentage of teachers agreeing or strongly agreeing:	Total HU	Total EU25	Total NMS10	Educational Level				Subject of teaching					
				Primary	Lower secondary	Upper secondary	Vocational	General primary	Literature and languages	Humanities and social sciences	Science, maths, computer sciences	Physical, artistical, crafts education	Vocational education
Access													
Our school is well equipped with computers [a]	82.4	74.2	76.5	79.9	82.8	89.5	91.6	77.1	80.4	79.8	80.5	83.1	89.0
The internet connection we have is sufficiently fast [b]	85.7	77.2	78.2	86.7	85.7	82.8	82.8	86.6	87.1	84.7	85.5	85.2	82.9
Better technical maintenance and support is required in our school [c]	80.7	64.8	64.6	83.2	81.3	72.3	73.0	82.7	79.8	84.9	81.2	78.9	75.6
Existing teaching materials on the Internet are of poor quality [d]	33.4	29.9	29.3	30.8	35.7	37.9	38.6	32.7	29.5	35.6	35.0	22.0	38.9
It is hard to find adequate learning materials for teaching [e]	47.2	38.7	30.5	46.8	47.5	48.0	52.1	36.8	39.6	52.3	53.7	43.1	60.8
Motivation													
Pupils are more motivated and attentive when computers and the internet are used in class [f]	92.5	86.3	90.1	93.4	93.1	89.6	91.0	95.9	89.4	94.9	92.3	92.4	94.8
Using computers in class does not have significant learning benefits for pupils [g]	33.1	20.7	9.5	32.7	32.8	34.0	33.2	25.3	34.3	25.6	35.9	28.6	29.6
Competence													
Teachers in our school do not have sufficient computer skills [h]	50.8	42.0	30.6	51.8	51.1	49.9	48.3	41.6	51.4	54.7	54.4	42.4	53.7
Competence / computer skills (Percentage of teachers who feel very confident at…)													
Using text processors [i]	71.9	65.0	63.2	71.1	73.3	74.6	74.0	*61.0**	60.8	56.5	80.6	*67.2**	*76.0**
Creating electronic presentations [j]	53.2	34.0	41.0	51.8	55.3	57.7	55.7	*42.1**	29.5	37.4	69.1	*39.6**	*57.4**
Using e-mail [k]	77.9	65.9	64.8	75.5	79.4	82.1	82.1	*66.8**	71.0	76.9	83.0	*66.6**	*70.8**
Downloading and installing software [l]	58.2	35.8	34.6	57.4	58.9	61.7	59.7	*52.7**	38.1	42.8	69.8	*48.7**	*55.9**

Source: *LearnInd CTS 2006;* ***Base:*** *a-h All teachers; i -l Teachers using computers in class* ***Question:*** *a-h Q14, i-l Q11.* ***Notes:*** *"xx.x*": based on at least 10 and less than 50 cases.*

Competence in using ICT

Hungarian teachers feel most competent at using e-mail and using a text processor programme but are less confident with downloading and installing software and with using presentation software packages. There are hardly any differences across school types.

Motivation for ICT use in Schools

Over 90% of Hungarian teachers see significant learning benefits for pupils using computers in class and say that pupils are more motivated and attentive when computers and the internet are used in class. Two thirds of the teachers express the opinion that using ICT in class also results in significant learning benefits for pupils.

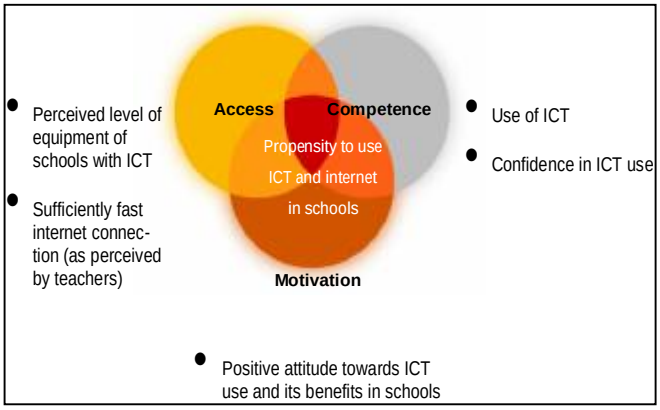
ICT Readiness of Teachers – the ACM Model

The ACM model as developed by Viherä and Nurmela (2001)[3] was applied in LearnInd to generate a typology according to the "propensity to the use of computers and internet by teachers in classroom situations at schools".

The typology in the figure below takes account of the three main categories of preconditions which need to be given for a school to make use of computers and the internet in the teaching process in classrooms, computer labs etc.

These are: access (to computers and the internet at school), competence (in using the computer software and the internet, and applying it for teaching purposes), and motivation (gauged through the attitude that using computers in classrooms results in significant learning benefits).

The Access-Competence-Motivation Model



Any attempt to group the classroom teachers according to their propensity to becoming users of computers and the internet in their teaching processes needs to take account of these three dimensions. In the present application of the ACM model data from the Classroom Teacher Survey (CTS) was used. Therefore "access" for instance is to be understood as a perceived level of computer equipment at schools and teachers' satisfaction therewith rather than an objective measure of equipment status.

38% of European teachers dispose of sufficient access to the internet at school, the necessary competence in using ICT in class and are motivated to its use. With 29% of the teachers belonging to this group, Hungary only ranks at 20th, placing it at the bottom of European countries. Overall the UK with 60% ranks top and Latvia with 15% finds itself at the very end.

Access, Motivation and Competence of Teachers for Using ICT in Schools in Hungary 2006

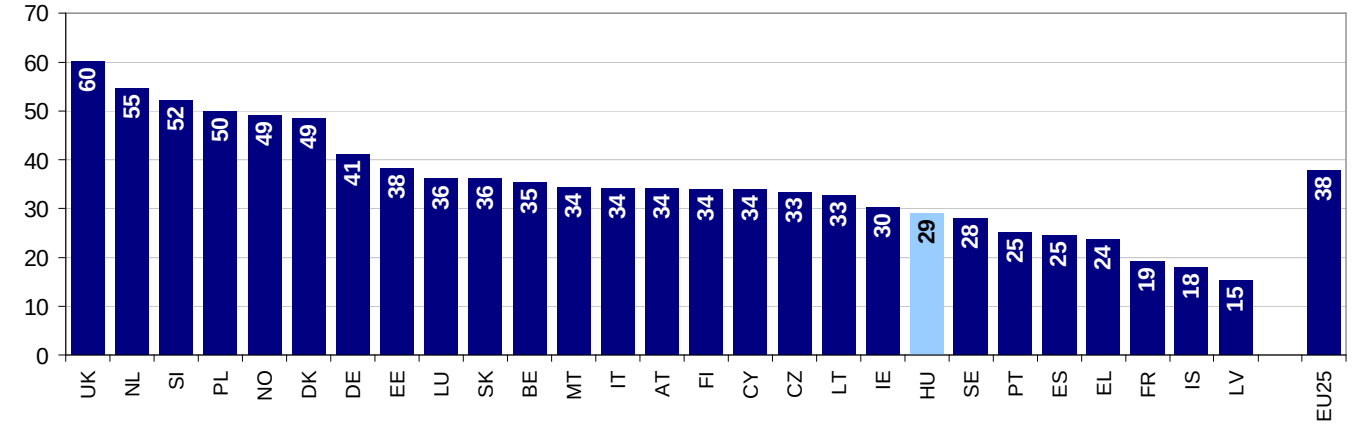
HU	EU25	Access	Competence	Motivation
6.1	4.3	~~Access~~	~~Competence~~	~~Motivation~~
12.3	3.9	**Access**	~~Competence~~	~~Motivation~~
8.1	9.7	~~Access~~	**Competence**	~~Motivation~~
3.3	5.0	~~Access~~	~~Competence~~	**Motivation**
22.8	13.7	**Access**	**Competence**	~~Motivation~~
7.3	4.8	**Access**	~~Competence~~	**Motivation**
11.1	20.7	~~Access~~	**Competence**	**Motivation**
29.1	37.9	**Access**	**Competence**	**Motivation**
100	100			

Percentage of teachers. ***Source:*** *LeanInd CTS 2006;* ***Base:*** *All teachers;* ***Question:*** *See endnote* [4]

The as yet insufficient internet connection in many schools and a lack of motivation of teachers for using ICT are the most critical issues for a wider uptake of computers and the internet in schools in Europe. 20% of European teachers indicate insufficient computer equipment and the low speed of internet connection at their school as key barriers. 14% show a lack of motivation, i.e., they are of the opinion that using computers in class does not result in significant learning benefits.

The situation in Hungary is different. It appears as if motivation of teachers for using ICT in class is problematic since 23% of those teachers with appropriate access to ICT and sufficient competence rate poorly on motivation. Also the group of teachers with access but lack of motivation and competence constitute 12% of the teachers in Hungary and is three times higher than the European average. The assumption that motivation constitutes a key problem in Hungarian schools is confirmed by the fact that only a very low 19% of the Hungarian schools using computers for teaching use them in classrooms and only 43% of teachers have used ICT in class in the last year.

ICT Readiness of Teachers in Hungary: Percentage of Teachers Fully Ready to use Computers in Class (ACM Indicator) 2006



Source: *LeanInd CTS 2006;* ***Base:*** *All teachers.* ***Question:*** *See endnote 5*

ANNEXES

Methodology Report

Universe / Sample population

In order to assure the comparability of school levels in all countries UIS-OECD-EUROSTAT "Mapping of national education programmes to ISCED 97 for school academic/year 2002/2003" [5] was used for composing the sample frame. Based on this, each country divided its school system into ICSED codes and made different combinations that existed in its country.

Sampling frame and method

The sample was composed using official databases, which contained contact data of schools. In the majority of countries the sample was drawn from a database received from the Ministry of Education.

For each country a separate template of sample frames was composed by TNS Emor. These templates contained data about school types across regions as well as location type. School types were defined based on the ISCED codes provided in UIS-OECD-EUROSTAT. Location type distribution was made according to the Eurostat type of locality classification which differentiates densely populated, intermediate and thinly populated municipalities[6]. Apart from that, each country was divided into 3-7 regions depending on the size of a country.

Based on the data provided by countries, TNS Emor composed quotas for each country. Two level stratification was used – quotas for first stage, random sample for second. The quotation for region by school type and location type were endorsed. Simple random selection was conducted by the local agency or the local source of the contact base. Both private and public schools were included in the sample. It was also obligatory to include schools of other teaching languages than the official language of a country in the sample.

Simple random sampling was used inside a quota cell. This means that if the quota for primary schools in region1 was 100 and the total number of primary school in this region was 800, then a random sample selection was be made among those 800 schools. This covered also both private and public schools and schools of other teaching languages than the official language of a country.

No more than 50% of interviews could be made in one school level. At least 10% of respondents had to be from schools which provided professional/vocational or combined programme of vocational and upper secondary level education (in case a country did not have special quota for those schools). It did not matter whether vocational education level was coded as ISCED 3 or ISCED 4.

There were no duplications in samples of head teacher and classroom teacher surveys. This was only allowed in countries with small universe sizes (e.g. Malta, Cyprus, Iceland, Estonia, Latvia etc) and in cases where the last quota cells were very difficult to achieve or there were not enough schools of a certain type. The priority was to include as many different schools as possible. In both surveys, 5 attempts were made before giving up and only if the respondent refused was this person not contacted again.

The CATI programme generated a randomly chosen letter. The interviewer asked for the person with a surname that started on the generated letter. If there was more than one teacher whose surname started with the selected letter, the person who was first alphabetically was chosen. If the correct person was not available, an appointment was made. At least 5 attempts were made, before taking another teacher.

Only in Malta, due to instructions dictated by the Education Department, would the Head Teacher randomly select a teacher who would be available for an appointment during which they would be interviewed.

Number of interviews conducted (HTS / CTS)

Country		Head Teachers	Classroom teachers
BE	Belgium	450	807
CZ	Czech Republic	500	1000
DK	Denmark	315	848
DE	Germany	450	901
EE	Estonia	400	851
EL	Greece	500	1000
ES	Spain	518	1022
FR	France	501	869
IE	Ireland	403	626
IT	Italy	500	900
CY	Cyprus	150	600
LV	Latvia	451	902
LT	Lithuania	457	908
LU	Luxemburg	82	277
HU	Hungary	500	1000
MT	Malta	100	200
NL	Netherlands	515	890
AT	Austria	320	450
PL	Poland	500	1000
PT	Portugal	450	900
SI	Slovenia	253	460
SK	Slovakia	502	1000
FI	Finland	318	601
SE	Sweden	200	450
UK	United Kingdom	450	905
IS	Iceland	177	424
NO	Norway	494	708
TOTAL		**10456**	**20499**

Fieldwork

Fieldwork was coordinated by the TNS Emor and conducted in cooperation with its local TNS offices excluding Iceland, Cyprus, Austria, Slovenia and Malta where TNS does not have offices. In these countries partners with whom TNS had previous experience were used.

Pilot interviews prior to the regular fieldwork were conducted with 20 schools in both target groups in Estonia and Greece in February 2006, in order to test the questionnaire (structure, comprehensibility of questions).

Between March and April 2006, surveys among head teachers (head teacher survey - HTS) and classroom teachers (CTS) were carried out in 27 European countries. TNS Emor was responsible for the fieldwork.

Weighting schemes

After the fieldwork, weighting coefficients were computed using region, location type and school type.

Statistical accuracy of the survey: confidence intervals

Statistics vary in their accuracy, depending on the kind of data and sources. A "confidence interval" is a measure that helps to assess the accuracy that can be expected from data. The confidence interval is the estimated range of values on a certain level of probability of error. Confidence intervals for estimates of a population fraction (percentages) depend on the sample size, the probability of error, and the survey result (value of the percentage) itself. Further to this, variance of the weighting factors has negative effects on confidence intervals.

The calculation of confidence intervals is based on the assumption of (quasi-) infinite population universes. In practice, however, in some countries and for some school levels the complete population of schools consists of only several hundred or even a few dozen of schools. In some cases, literally each and every school within a country-school type cell was contacted and asked to participate in the survey. This means that it is practically impossible to achieve a higher confidence interval through representative school surveys in which participation is not obligatory.

Country Background Data

Compared to the other EU Member States, Hungary has one of the lowest annual population growth rates and a low fertility rate. Although the GDP per Capita is at a low level and the GDP growth rate on average, expenditure on education is high. The pupil/teacher ratio is one of the best across Europe.

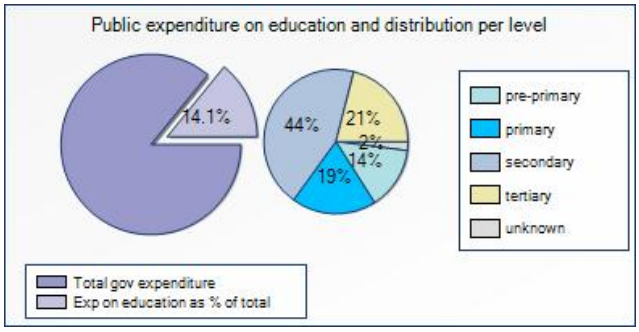
General Population Data for Hungary 2002/03[7]

Total population (000)	9,923
Annual population growth rate (%)*	-0.3
Population 0-14 years (%)	16
Rural population (%)*	35
Total fertility rate (births per woman) *	1.3
Infant mortality rate (0/00) *	7
Life expectancy at birth (years) *	72
GDP per capita (PPP) US$ *	13,921
GDP growth rate (%)*	3.5
* World Bank World Development Indicators	

Resources for Education in Hungary 2002/03

Pupil / teacher ratio (primary)	10
Public expenditure on education :	
as % of GDP	5.5
as % of total government expenditure	14.1
Distribution of public expenditure per level (%):	
pre-primary	14
primary	19
secondary	44
tertiary	21
unknown	2

Resources for Education in Hungary 2002/03



The Educational System in Hungary[8]

The population of the Republic of Hungary was 10,198,000 in 2001. The overwhelming majority (over 97%) of the population is Hungarian (Magyar) while the official language is Hungarian.

In the 2001/2002 school year, the number of people between 0 and 29 years of age was 4,036,000 (39.9% of the population). The number of children of compulsory school age was 1,360,000. The official language of instruction is Hungarian, but a number of ethnic and national minorities (e.g. German, Romanian, Slovenian, Serb and Croatian) have minority educational institutions with their own languages as first or second language of instruction at primary and secondary level of teaching. The provision of minority education – similarly to mainstream education – is the task of the maintainer, which, in most cases is the local government.

Horizontally, the administrative responsibilities are shared between the Ministry of Education and other ministries (primarily the Ministry of Employment and Social Affairs, the Ministry of Finance and the Ministry of Interior). Vertically, the administrative control is decentralized and the managing responsibility is shared among the central (national), the local (regional) and institutional levels.

The local governments administer pre-primary, primary and secondary education. The different establishments enjoy a fair degree of decision-making autonomy not only in terms of organisation and functioning but also with regard to their budgets.

Most pupils attend public-sector schools, which are administered and organised by the public authorities, primarily the local governments. The financing of educational institutions is sector neutral. State and private institutions receive funding according to the same criteria.

The use of ICT in Education[9]

In the past years, education policy identified the improvement of the supply of IT devices as a priority. An important objective is to extend the use of ICT devices to all fields of education and to ensure that it is integrated into the teaching-learning process as a basic competence. PHARE programmes facilitated the implementation of the accessibility of public education institutions as well as the IT development and the realisation of the associated infrastructural investments in primary schools.

In the framework of the Regional Operational Programme (ROP) institutions and their maintainers have been provided with the opportunity to develop essential infrastructure. Such a measure is the "Development of the infrastructure of pre-school (ISCED0) and primary education institutions", which allocates resources to the renovation and modernisation of buildings.

The importance of the role of information and communication technologies (ICT) in education is demonstrated by the fact that the resources directed to this area have been significantly increased. As well as the investment in the development of the IT culture of teachers, such as the in-service training of tens of thousands of teachers, content digitalisation is another area that experienced a tremendous step forward. The most important of the measures introduced in order to encourage virtual mobility is Hungary's Sulinet Programme – in operation since 1996 – which is to promote the ICT investments and the cultural development of schools and aims at providing public education institutions with Internet access and computer labs, as well as at establishing a digital curricular database (Sulinet Digital Knowledge Base, SDKB). The Sulinet Digital Knowledge Base (SDKB), an electronic database of teaching materials and a framework for content management, covers areas of education across several school grades and provides an extensive range of digital teaching materials and re-usable components of teaching materials for teachers and students. The teaching materials stored in SDKB can be used for either individual learning or cooperative learning in groups. Its introduction of the Sulinet Digital Knowledge Base and the associated digital contents and teaching materials, as well as the use of eLearning frameworks are what make the "digital" paradigm shifts in education necessary.

In the field of vocational education and training, the European Computer Driving Licence (ECDL) is being obtained by more and more people in Hungary. Secondary school students are eligible for fee reimbursement of a successful ECDL exam.

The Study

There is a lack of information on the actual use of ICT for learning in schools and for supporting political action in potential future programmes. It is necessary to clarify matters such as the educational vision of heads of schools, the current impact of ICTs on teachers' practice, support and training and on other factors for success in e-learning.

The objective of the study is to obtain estimates for the eEurope 2005 indicator on e-learning "number of pupils per computer with Internet connection (broadband/non-broadband)" and relate it to other possible indicators of educational use of ICT in compulsory education (e-learning in schools). The study looks at how Information and Communication Technologies (ICT) are used in schools.

The study is a continuation of the earlier benchmarking exercise for eEurope 2002.

It involved two surveys. Firstly of head teachers to obtain information on the schools and then of teachers to focus on their use of ICTs in the teaching process

This exercise is part of the Information Society monitoring and benchmarking process for which the Commission in cooperation with the Council defined benchmarking indicators.

Country Briefs

This document has been prepared by **empirica** based on own desk research and the above mentioned primary data sources: Head Teacher Survey (HTS) 2006 and Classroom Teacher Survey (CTS) 2006 in the EU25 member states, Iceland and Norway.

Altogether 27 LearnInd Country Briefs are available in a common format, one for each member of the enlarged European Union, Norway and Iceland.

A final report has also been developed. It includes approximately 100 exhibits, more than 250 data tables and a report about the key results.

You can access and download these documents in PDF format (for free) from http://ec.europa.eu/information_society/eeurope/i2010/benchmarking/index_en.htm.

More information

Check our results and achievements on: http://ec.europa.eu/information_society/eeurope/i2010/benchmarking/index_en.htm. If you wish to be provided with more details, or to receive news and updates, please contact us at: **learnind@empirica.com** or get in touch with us.

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1 Note that "in class" means during lessons while teaching and does not denote a particular location such as a classroom.

2 Base (100%) = all teachers who have used a computer in class in the last 12 months.

3 Viherä, M-L, Nurmela, J (2001) 'Communication Capability Is an Intrinsic Determinant for Information Age', in Futures, Volume 33, Issue 3-4:245-265.

4 Synthetic indicators: Access: Q14 (2) "Our school is well equipped with computers" and Q14 (3) "The internet connection we have is sufficiently fast ".

Competence: Q11 How confident do you feel... a) using a text processor, b) creating a presentation c) using e-mail, d) downloading and installing software. Threshold: Average of 2.5 or more on a 1-4 confidence scale

Motivation: Q14 (8); disagree to "Using computers in class does not result in significant learning benefits".

For full question wordings refer to questionnaire.

[5] http://forum.europa.eu.int/Public/irc/dsis/edtcs/library?l=/public/unesco_collection/programmes_isced97&vm=detailed&sb=Title

[6] Densely populated area refers to a set of closely related local units, each one of which having a density greater than 500 inhabitants per km2, and the total population of which being of at least 50 000 inhabitants; Intermediate area refers to a set of closely related local units that do not pertain to a densely populated area, each one of which having density greater than 100 inhabitants per km2, and where the total population is at least of 50 000 inhabitants or it refers to a set that is adjacent to a highly populated area. Thinly populated area (rural): refers to a set of closely related local units that are not part of a densely populated area, or of an intermediate area. (A set of local areas totalling less than 100 km², not reaching the required density, but entirely enclosed within a densely-populated or intermediate area, is to be considered to form part of that area. If it is enclosed within a densely-populated area and an intermediate area it is considered to form part of the intermediate area).

[7] Source: http://www.uis.unesco.org/profiles/selectCountry_en.aspx (visited 28 March 2006)

[8] Source: http://www.eurydice.org/Documents/struct2/frameset_EN.html (visited: 28 March 2006)

[9] Source: http://europa.eu.int/comm/education/policies/2010/nationalreport_en.html (visited: 9 May 2006)